UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,824	01/11/2002	Joseph Rustad	16010-05885	7891

758	7590	02/08/2006

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EXAMINER
JEAN GILLES, JUDE

ART UNIT	PAPER NUMBER
2143	

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>20 January 2006</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>33-40</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>33-40</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>11 January 2002</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date <u>07/18/2005</u>.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

This Action is in regards to the Reply received on 01/20/2006.

Response to Amendment

1.   This action is responsive to the RCE application filed on 01/20/2006. Claims 1-

32 have been cancelled. No claim is amended. Claims 33-40 are newly added. Claims

33-40 are now pending. Claims 33-40 represent a method and apparatus for "Fast

transaction response time prediction across multiple delay sources."

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   **Claims 33-40** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Qin et al (Qin), Patent No. 6,393,480 B1 in view of Engel et al (Engel) U.S. Patent No.

6,519,636 B2.

Regarding **claim 33**, Qin discloses a method of predicting the performance of an

application in a multi-hop network, the multi-hop network comprising a client and a

server, the method comprising:

determining, for each thread of the application, a set of application factors

corresponding to a set of functions performed by the application, the

application factors being independent of the network and of a network flow

control protocol, the application factors comprising average packet size (column

5, lines 40-50);

determining a set of network delay times corresponding to a series of network delay

sources along the multi-hop network path, the network delay sources

comprising a queuing delay, a bandwidth delay, a bottleneck delay, and one of

a transmission delay, a constant delay, and a node delay (column 5, lines 3-66;

column 8, lines 1-67; column 9, lines 25-67; column 10, lines 1-65);

determining a set of network flow factors corresponding to the network flow control

protocol, the network flow factors comprising a number of turns added per

direction, the direction relative to the client and the server (column 5, lines 40-67;

column 8, lines 8-62; fig. 8, item 806);

determining a duration of each thread of the application based on the application

factors, the network delay times and the network flow factors (column 5, lines 1-

9); and

determining a total response time based on the durations of the threads (column 5, lines

1-9).

However, the Office agrees with the applicants that Qin does not teach the

details of determining, for each thread of the application, a set pf application factors

corresponding to a set of functions performed by the application, including average

node send time.

In the same field of endeavor, Engel discloses a set of application factors

Bandwidth includes but is not limited to any one or more of the following parameters:

peak rate and average rate at which packets are sent from the network server to the

client, maximum burst sizes at which packets can be sent at the peak rate, and the

maximum length of the packets [*see Engel; column 6, lines 47-53*].

Accordingly, it would have been obvious to one of ordinary skill in the networking

art at the time the invention was made to have incorporated Engel's teachings of using

the method of determining the average time at which packets are sent with the

teachings of Qin, for the purpose of improving the ability of a network "...*to provide a*

method and a system for classifying, manipulating, and/or controlling communications,

e.g., packets transmitted over a network" as stated by Engel in lines 42-45 of column 5.

Qin also provides additional reason to combine by stating that his invention is thus able

to estimate performance of an application in a particular network environment....predict

response time and relationships among threads [see Qin, column 2, lines 3-12]. By this

rationale, **claim 33** is rejected.

Regarding **claim 34**, The combination Qin-Engel discloses the method of claim

33, wherein said determining a set of network flow factors comprises generating a

histogram of node send time, and determining the number of turns added per direction

based on the histogram (fig. 3, item 306; column 8, lines 8-62).

Regarding **claim 35**, The combination Qin-Engel discloses an apparatus for predicting the performance of an application in a multi-hop network, the multi-hop network comprising a client and a server, the apparatus comprising:

means for determining, for each thread of the application, a set of application factors

corresponding to a set of functions performed by the application, the

application factors being independent of the network and of a network flow

control protocol, the application factors comprising average packet size (column

8, lines 46-54) and average node send time (column 4, lines 29-41);

means for determining a set of network delay times corresponding to a series of

network delay sources along the multi-hop network path, the network delay

sources comprising a queuing delay, a bandwidth delay, a bottleneck delay,

and one of a transmission delay, a constant delay, and a node delay(column 5,

lines 3-66;   column 8, lines 1-67; column 9, lines 25-67; column 10, lines 1-65);

means for determining a set of network flow factors corresponding to the network

flow control protocol, the network flow factors comprising a number of turns

added per direction, the direction relative to the client and the server (column 5,

lines 40-67;   column 8, lines 8-62; fig. 8, item 806);

means for determining a duration of each thread of the application based on the

application factors, the network delay times and the network flow factors(column

5, lines 1-9); and

means for determining a total response time based on the durations of the thread

(column 5, lines 1-9).

Regarding **claim 36**, The combination Qin-Engel discloses the apparatus of

claim 35, wherein said means for determining a set of network flow factors comprises

means for generating a histogram of node send time, and means for determining the

number of turns added per direction based on the histogram (fig. 3, item 306; column 8,

lines 8-62).

Regarding **claim 37**, The combination Qin-Engel discloses a computer readable

medium comprising computer readable instructions which, when executed by a

processing system, cause the processing system to perform a method of predicting the

performance of an application in a multi-hop network, the multi-hop network comprising

a client and a server, the method comprising:

determining, for each thread of the application, a set of application factors

corresponding to a set of functions performed by the application, the

application factors being independent of the network and of a network flow

control protocol, the application factors comprising average packet size (column

8, lines 46-54) and average node send time [see Engel; column 6, lines 47-53];

determining a set of network delay times corresponding to a series of network delay

sources along the multi-hop network path, the network delay sources

comprising a queuing delay, a bandwidth delay, a bottleneck delay, and one of

a transmission delay, a constant delay, and a node delay (column 5, lines 3-66;

column 8, lines 1-67; column 9, lines 25-67; column 10, lines 1-65);

determining a set of network flow factors corresponding to the network flow control

protocol, the network flow factors comprising a number of turns added per

direction, the direction relative to the client and the server (column 5, lines 40-67;

column 8, lines 8-62; fig. 8, item 806);

determining a duration of each thread of the application based on the application

factors, the network delay times and the network flow factors (column 5, lines 1-

9); and

determining a total response time based on the durations of the threads (column 5,

lines 1-9).

Regarding **claim 38**, The combination Qin-Engel discloses the medium of claim

37, further comprising computer readable instructions which, when executed by the

processing system, cause the processing system to generate a histogram of node send

time [see Engel; column 6, lines 47-53] and to determine the number of turns added

per direction based on the histogram (fig. 3, item 306; column 8, lines 8-62).

Regarding **claim 39**, The combination Qin-Engel discloses an apparatus for

predicting the performance of an application in a multi-hop network, the multi-hop

network comprising a client and a server, the apparatus comprising:

application factor logic for determining, for each thread of the application, a set of

application factors corresponding to a set of functions performed by the

application, the application factors being independent of the network and of a

network flow control protocol, the application factors comprising average

packet size (column 8, lines 46-54) and average node send time [see Engel;

column 6, lines 47-53]; delay time logic for determining a set of network delay times

corresponding to a

series of network delay sources along the multi-hop network path, the network

delay sources comprising a queuing delay, a bandwidth delay, a bottleneck

delay, and one of a transmission delay, a constant delay, and a node delay

(column 5, lines 3-66; column 8, lines 1-67; column 9, lines 25-67; column 10,

lines 1-65);

flow factor logic for determining a set of network flow factors corresponding to the

network flow control protocol, the network flow factors comprising a number

of turns added per direction, the direction relative to the client and the server

(column 5, lines 40-67; column 8, lines 8-62; fig. 8, item 806);

first duration logic for determining a duration of each thread of the application based

on the application factors, the network delay times and the network flow

factors (column 5, lines 1-9); and

second duration logic for determining a total response time based on the durations of

the threads (column 5, lines 1-9).

Regarding **claim 40**, The combination Qin-Engel discloses the apparatus of

claim 39, wherein said flow factor logic for determining a set of network flow factors

comprises logic for generating a histogram of node send time [see Engel; column 6,

lines 47-53], and logic for determining the number of turns added per direction based on

the histogram (fig. 3, item 306; column 8, lines 8-62).

Response to Arguments

4.   Applicant's Request for Reconsideration filed on 01/20/2006 has been carefully

considered but is not deemed fully persuasive. However, because there exists the

likelihood of future presentation of this argument, the Examiner thinks that it is prudent

to address Applicants' main points of contention.

Applicant contends that Qin fails to disclose determining, for each thread of the

application, a set of application factor; corresponding to a set of functions

performed by the application; the application factors being independent of the

network and of a network flow control protocol, the application factors comprising

A) average packet size and B) average node send time.

5.   As to "Point A" it is the position of the Examiner that the Qin patent in detail

teaches the limitations of an average packet or frame size as expressed in claim 33

above [see Qin; column 5, lines 40-50].

As to "Point B", new reference of Engel teaches in details this limitation of the

claim [see rejection of claims 33 above; see Engel, column 6, lines 47-53].

Conclusion

6.   Accordingly, **THIS ACTION IS MADE NON- FINAL.** Any inquiry concerning this communication or earlier communications from examiner should be directed to Jude Jean-Gilles whose telephone number is (571) 272-3914. The examiner can normally be reached on Monday-Thursday and every other Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley, can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-9000.

Jude Jean-Gilles

Patent Examiner

Art Unit 2143

JJG

February 04, 2006
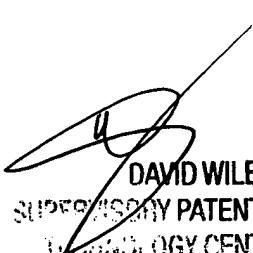
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